Lumbar Microdiscectomy: Analysis of the Results Obtained by an Identical Operator Using a Single-technique in the Same Clinic and Comparison with Literature Data

Ahmet Sengoz MD; Erol Tasdemiroglu
Yenibosna Safa Hospital Neurosurgery Department Istanbul Turkey

Introduction

Lumbar microdiscectomy (MD) remains currently as the most effective surgical treatment in surgical treatment of lumbar disc herniation. The studies on early and late-term outcomes of microdiscectomy method and comparatively outcomes of the other alternative surgeries (microendoscopic discectomy and open surgery) are currently ongoing.

The differences due to application of an identical surgical technique by multiple surgeons in the single or multicentered studies as a general routine, additional operations performed during training process in the training clinics cause mosaic outcomes about the investigated surgical technique. This study has aimed to analyze the pure surgical outcomes of the lumbar microdiscectomy method performed by an identical operator using a single-technique in the same clinic. Patient beneficence has been evaluated as early-term (first 3 weeks) and late-term (6 months and further) by VAS and ODI scores.

Methods

Between December 2011 and January 2015, 746 cases of lumbar disc herniation were operated by lumbar microdiscectomy method. The cases of lumbar spinal stenosis and instrumentation surgeries performed for instability has been excluded from the study. Spine was slightly flexed or in a neutral position while the patient was prone on the operating table. A small incision was not considered as a prerequisite for the microsurgery. Median incision size for the cases was 3.1 cm (range: 1.5 - 4.7 cm). Surgical microscope was engaged at the beginning of hemilaminotomy. Hemipartial laminotomy was performed at all levels including L5-S1. Ligamentum flavum was excised and neural foramen was exposed in all cases. Medial portion of superior facet was removed.

Sole sequestrectomy was not perfomed and all patients also had discectomy. During microdiscectomy, annulus fibrosus was partially curetted with the help of a curette following fragmentectomy. Paravertebral fascia was sutured separately.

Conclusions

Since it not only lacked to provide any advantages to the surgeon but also resulted in engorged epidural veins in the operation site, hyperflexion was avoided while positioning the patient. Size of the incision should allow the surgeon ease of access. Small incisions are associated with longer operation time and higher risk of complications. In our cases, size of the incision varied relative to the number of segments to be operated and the thickness of the subcutaneous fatty tissue. In order to provide a safe environment for the dissection between the dural sac and the disc material and to decrease the risk of dural laceration, it is important to remove the medial portion of the superior facet. During this process joint capsule may be accessed medially depending on the structure of the facet joint. This is regarded as a complication which requires further consideration. Medially accessed facet capsules did not cause instability but were associated with pain of short duration while rolling in or getting up from the bed for 1-2 months postoperatively. Dynamic imaging studies of the recurrent cases revealed primarily microinstability signs. This ongoing project is carried out independent of the current study.

Results

Totally 788 segments of 746 cases were operated. Of the cases; 657 were primary while 89 were previously operated. Totally 43 (6.15%) segments of the primary cases and 3 (3.37%) segments of the relapsed cases were reoperated. Tertiary surgery was performed in totally 4 (0.51%) segments. The rates of the complications such as hemorrhage, dural laceration and root injury, postoperative complaints associated with effect of surgical technique on facet joint and their outcomes have been evaluated.

Median VAS and ODI scores were 7.6 (range:3-9) and 77 (27-100), respectively, in the preoperative period; and 2.2 (range: 1-9) and 24.2 (range: 12-88), respectively, in the third postoperative week and 1.2 (range: 1-3) and 12, respectively, in the sixth postoperative month. All patients were mobilized and discharged the morning following the operation regardless of the time of surgery. Two cases with early postoperative hemorrhage and paraplegia were reoperated immediately. These two cases were discharged without any complications (neurologic deficit). One case had a nerve injury. A recurrent L5-S1 case had S1 root injury. This patient had 2/5 plantar flexion and causalgia in the S1 dermatome postoperatively and was referred to the physical rehabilitation program. Four cases had lacerations of the dura, which were sutured with 6/0 vicryl. No CSF fistulation was detected in the postoperative period.

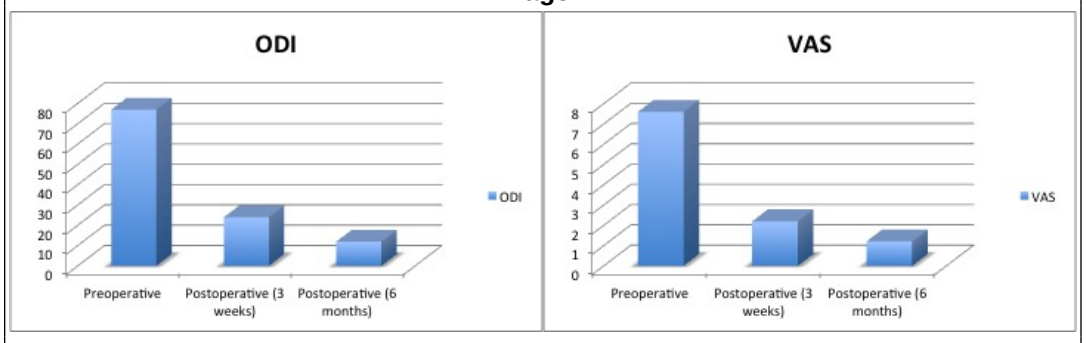
Learning Objectives

1.Learn the factors affecting the results of surgical treatment of lumbar disc herniation.

2.Learn complications in the surgical treatment of lumbar disc herniation.

3.Recognise pure surgical outcomes of the lumbar microdiscectomy method performed by an identical operator using a single-technique in the same clinic.

Image 1



Pre and postoperative VAS and ODI scores